

We claim:

1. Accordingly the present invention provides a method for selective recording of SH waves using an array of sensors that filter out all non-SH waves, the method comprising :
 - (a) deriving a formula for computing a length of an arm of a square array of sensors based on the following presumptions:
 - a. that the far-field S motion and the **curl** of the wave-field are approximately equivalent
 - b. that the far-field SH motion and the vertical component of the **curl** of the wave-field are approximately equivalent
 - c. that the vertical component of the **curl** of the wave field is equivalent to the vector sum of the recordings in four sensors placed in the four arms of a square array
 - (b) wherein the compounding effect of the array is that of a convolution with the impulse response of the array; and wherein
 - (c) the removal of the compounding effect of the array is equivalent to deconvolving the effect of the array which in turn is equivalent to dividing the array response by its transfer function.
 - (d) thereby selectively recording of SH waves while filtering out all non-SH waves.
2. A method as claimed in claim 1 wherein a vector sum is carried out by digitally summing the recordings of individual sensors of the sensor array.
3. A method as claimed in claim 2 wherein vector sum is carried out by summing by electronic means the recordings of the individual sensors.
4. A method as claimed in claim 1 wherein the direction of arrival of SH waves in plan view can be at an arbitrary angle to the axis of the sensors.
5. A method as claimed in claim 1 wherein the SH waves are plane waves.
6. A method as claimed in claim 1 wherein the SH waves are non-planar waves.
7. A method as claimed in claim 1 wherein the sensor array exclusively record SH-waves, while filtering out all coherent noise, P waves, microseismic and cultural noise of Rayleigh type and dispense with second recording, normalization and subtraction common to all versions of $\pm y$ method and SYSLAP method.
8. A sensor array for the recordal of SH waves while filtering out all non-SH waves, the sensor array comprising a plurality of sensors connected with each other, in the shape of a regular polygon, each side of the polygon having a sensor at its midpoint aligned along the side.